

Claims

1. A surgical instrument, comprising:
 - an end effector responsive to a longitudinal firing motion to perform a surgical operation;
 - a shaft distally connected to the end effector;
 - 5 a firing member within the shaft to transfer the firing motion to the end effector; and
 - a handle proximally connected to the shaft and firing member, comprising:
 - a housing,
 - a firing control configured for manual movement by an operator in a firing direction and in an opposite return direction, and
 - 10 a firing mechanism frictionally biased to couple with said firing member when said firing control moves in said firing direction.
2. The surgical instrument of claim 1, wherein said end effector comprises a stapling device responsive to the longitudinal firing motion to perform the surgical operation of stapling.
3. The surgical instrument of claim 2, wherein said end effector comprises:
 - an elongate channel connected to said shaft;
 - an anvil pivotally coupled to said elongate channel for clamping tissue; and
 - a staple cartridge received in said elongate channel;
 - 5 wherein said firing member distally terminates in a firing bar operably configured to actuate said staple cartridge to form staples in the clamped tissue.
4. The surgical instrument of claim 3, further comprising a closure means of said stapling device.
5. The surgical instrument of claim 1, wherein said firing mechanism is frictionally biased to decouple with said firing member when said firing member is moved in said return direction.

6. The surgical instrument of claim 1, further including a rack movably coupled with said firing member and operably coupling with said firing mechanism when said firing mechanism is actuated.
7. The surgical instrument of claim 1, wherein said handle includes least one friction surface for biasing said firing mechanism into coupling engagement with said firing member in response to movement of said firing control in the firing direction.
8. The surgical instrument of claim 7, wherein said firing member includes a biasing surface, said friction surface engaging a biasing surface to bias said firing mechanism with said firing member.
9. The surgical instrument of claim 8, wherein said firing control further comprises a trigger, an upper portion of said trigger traversing an arc during manual movement, at least a portion of a selected one of a group consisting of said friction and biasing surfaces being arcuate.
10. The surgical instrument of claim 8, wherein a selected one of a group consisting of said friction surface and said biasing surface is deformable.
11. The surgical instrument of claim 10, wherein the selected one of the group consisting of said friction surface and said biasing surface is comprises an elastomer.
12. The surgical instrument of claim 8, wherein the selected one of the group consisting of said friction surface and said biasing surface is smooth.
13. The surgical instrument of claim 8, wherein the selected one of the group consisting of said friction surface and said biasing surface is toothed.
14. The surgical instrument of claim 9, wherein the selected one of the group consisting of said friction surface and said biasing surface has a coefficient of friction between about 0.04 and 0.4.

15. The surgical instrument of claim 8, said biasing surface comprises a wheel.

16. A surgical instrument, comprising:
an end effector responsive to a longitudinal firing motion to perform a surgical operation;
a shaft distally connected to the end effector;
5 a firing member slidably receiving by the shaft to transfer the firing motion to the end effector; and
a handle proximally connected to the shaft and firing member, comprising:
a rack distally coupled to the firing member,
a firing control responsive to an operator to move in a firing direction and a return
10 direction, and
a firing mechanism including a pawl frictionally biased to couple the firing control to the rack to impart the firing motion in response to the firing direction and frictionally biased to uncouple the firing control from the rack in response to the return direction.
17. The surgical instrument of claim 16, wherein said end effector comprises a stapling device responsive to the longitudinal firing motion to perform the surgical operation of stapling.
18. The surgical instrument of claim 17, wherein said end effector comprises:
an elongate channel connected to said shaft;
an anvil pivotally coupled to said elongate channel for clamping tissue; and
a staple cartridge received in said elongate channel;
5 wherein said firing member distally terminates in a firing bar operably configured to actuate said staple cartridge to form staples in the clamped tissue.

19. A surgical instrument, comprising:
- an end effector responsive to a longitudinal firing motion to perform a surgical operation;
 - a firing actuator responsive to a user to operably configured to produce the firing
 - 5 motion; and
 - a firing means for frictionally coupling the firing motion of the firing actuator to the end effector.